

memory access means for recognizing said binary logic signal as an access permission signal and executing the memory access to said data memory means at a timing when said logic signal is in a second state.

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2. A head substrate according to claim 1, wherein said external connection terminals include:

first common terminal wiring means for supplying said externally entered binary logic signal to said memory access means and to said recording execution means; and

second common terminal wiring means for supplying said externally entered clock signal as a recording clock signal to said recording execution means and as a memory clock signal to said memory access means.

3. (Amended) A head substrate according to claim 2, wherein:
said recording execution means is adapted for executing the recording operation based on the recording image signal serially entered into one of said external connection terminals; and

said common terminal wiring means allows at least one of the input of data into said memory access means and the output of data from said memory access means, using the same external connection terminal that serially inputs the recording image signal.

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(Amended) A head substrate according to claim 2, wherein:
said recording execution means is adapted for executing the recording operation based on the recording image signal parallel entered into plurality of

said external connection terminals; and

said common terminal wiring means allows at least one of the parallel input of data into said memory access means and the parallel output of data from said memory access means, using the same external connection terminal that parallelly inputs the recording image signal.

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(Twice Amended) A head substrate according to claim 2, wherein:

said recording execution means includes a shift register which is reset by a reset signal externally entered into one of said external connection terminals and is adapted to temporarily hold and parallel output, at a timing corresponding to the clock signal, the recording image signal serially entered into another of said external connection terminals; and

said common terminal wiring means is adapted for supplying said memory access means with the reset signal for said shift register, as said binary logic signal constituting said access permission signal.

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(Twice Amended) A head substrate according to claim 2, wherein:

said recording execution means includes a shift register which is adapted to be reset by a reset signal externally entered into one of said external connection terminals and then to temporarily hold and parallel output, at a timing corresponding to the clock signal, the recording image signal serially entered into another of said external connection terminals, and a latch circuit which is adapted to be reset by said reset signal and then to temporarily hold and output the recording image signal parallel outputted from said shift register; and

said common terminal wiring means is adapted for supplying said

memory access means with said reset signal as said binary logic signal constituting said access permission signal.

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(Twice Amended) A head substrate according to claim 2, wherein:

said recording execution means includes a shift register which is adapted to be reset by a reset signal externally entered into one of said external connection terminals and then to temporarily hold and parallel output, at a timing corresponding to the clock signal, the recording image signal serially entered into another of said external connection terminals, and a latch circuit which is adapted to temporarily hold and output the recording image signal parallel outputted from said shift register at a timing corresponding to a latch signal externally entered into still another of said external connection terminals; and

said common terminal wiring means is adapted for supplying said memory access means with said latch signal as said binary logic signal constituting said access permission signal.

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(Twice Amended) A head substrate according to claim 1, wherein

said recording execution means includes plural recording elements for recording the recording image signal parallel outputted from said latch circuit, corresponding to a recording pulse signal externally entered into one of said external connection terminals.

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A head substrate according to claim 11, wherein said recording element is a heat generating element.

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(Twice Amended) A head substrate according to claim 2, wherein

said common terminal wiring means is adapted to supply said memory access means with the clock signal for said recording image signal, as a memory clock signal.

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(Twice Amended) A head substrate according to claim 2, wherein:

said data memory means is means for executing both data writing and data readout as the memory access;

said memory access means is means for selectively executing either of data writing into and data readout from said data memory means corresponding to an externally entered mode switching signal; and

said common terminal wiring means is adapted for supplying said memory access means with the input signal to one of said external connection terminals as the mode switching signal.

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(Twice Amended) A head substrate according to claim 2, wherein:

said recording execution means is adapted for receiving a driving electric power externally entered from one of said external connection terminals; and

said common terminal wiring means is adapted for supplying said memory access means with the driving electric power for said recording execution means.

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(Twice Amended) A head substrate according to claim 2, wherein

said external connection terminals, said recording execution means, said data memory means, said memory access means and said common terminal wiring means are constituted by films formed on one base substrate.

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(Twice Amended) A printing head detachably mounted on a printer

main body, comprising a head substrate according to claim 1.

¹⁵₁₆ (Amended) A printing head according to claim ¹⁴~~17~~, wherein the execution means includes heat recording elements for discharging ink.

²⁰₂₁ (Amended) A printing head detachably mounted on a printer main body, comprising:

plural external connection terminals individually receiving, from the exterior, a binary logic signal corresponding to whether or not to execute a recording operation, a recording image signal and a clock signal;

recording execution means for executing the recording operation according to the recording image signal and the clock signal entered through said external connection terminals, in case said binary logic signal is in a first state;

data memory means for executing a memory access which is at least either of data writing and data readout; and

memory access means for recognizing said binary logical signal as an access permission signal and executing the memory access to said data memory means at a timing when said logical signal in a second state.

²¹₂₂ A printing head according to claim ²⁰~~21~~, wherein said external connection terminals include:

first common terminal wiring means for supplying said externally entered binary logic signal to said memory access means and to said recording execution means; and

second common terminal wiring means for supplying said externally

entered clock signal as a recording clock signal to said recording execution means and as a memory clock signal to said memory access means.

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(Amended) A printing apparatus comprising:

a printing head according to claim ~~17~~¹⁴;

input means for individually transmitting the binary logic signal of the first state and various signals such as the recording image signal and the clock signal respectively to plurality of said external connection terminals of said printing head, thereby causing said recording execution means to execute a recording operation; and

access control means for transmitting the binary logic signal of the second state and the clock signal, etc. to said plural external connection terminals of said printing head, thereby causing said memory access means to execute the memory access.

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A printing apparatus comprising:

a printing head according to claim ~~24~~²⁰;

input means for individually transmitting the binary logic signal of the first state and various signals such as the recording image signal and the clock signal respectively to said plurality of external connection terminals of said printing head, thereby causing said recording execution means to execute a recording operation; and

access control means for transmitting the binary logic signal of the second state and the clock signal, etc. to said plural external connection terminals of said printing head, thereby causing said memory access means to execute the memory access.

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A printing apparatus according to claim ~~23~~¹⁶, wherein:

said input means is adapted for serial transmission of the recording

image signal to a specified one of said external connection terminals; and

said access control means is adapted for serial transmission of the writing data for said memory access means to one of said external connection terminals in which the recording image signal is serially entered.

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A printing apparatus according to claim 25, wherein:

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said input means is adapted for parallel transmission of the recording image signal to a specified plurality of said external connection terminals; and

said access control means is adapted for parallel transmission of the writing data for said memory access means to said plurality of external connection terminals in which the recording image signal is parallel entered.

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(Amended) A printing apparatus according to claim 23, wherein the recording is executed by discharging ink by the heat of said heat generating element.

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A printing apparatus according to claim 24, wherein said recording execution means includes a heat generating element for recording.

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(Amended) A printing apparatus according to claim 29, wherein the recording is executed by discharging ink by the heat of said heat generating element.

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